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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,250

10/04/2005

Norikazu Ueyama

13539/1

8946

26646 7590 11/15/2007
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EXAMINER

PEPITONE, MICHAEL F

ART UNIT

PAPER NUMBER

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DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,250

Applicant(s)

UEYAMA ET AL.

Examiner

Michael Pepitone

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/4/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: Extraneous markings in formula (III) (pg. 7, ln. 13). Appropriate correction is required.

Claim Rejections - 35 USC § 102

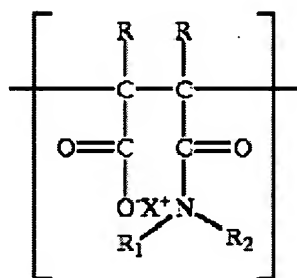
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Klug *et al.* (US 2002/0002116), when taken with Ueyama *et al.* *Macromolecules*, **2001**, 34, 2607-2614.

Regarding claim 1: Klug *et al.* teaches a composition comprising a polymer containing a substituted carboxyl group (A), and substituted carbamoyl group (B), wherein the ratio of (A) to (B) is about 1:1, and the sum of the units in the polymer is 10% to 99% (¶ 7-15; 19; 21-27).



wherein

each R is independently H or C₁₋₅-alkyl;

X is H, an alkaline or earth alkaline metal or a quarternary ammonium group;

R₁ is H or C₁₋₁₈-alkyl; and

R₂ is C₁₋₁₈-alkyl;

and wherein the alkyl groups represented by R₁

and R₂ may carry a hydroxy or amino substituent;

Ueyama *et al.* provides evidence that such alternately amidated anhydrides act as ligands for Ca(II) complexes, and may act as models for biomineralization {bone / tooth adhesive}.

Regarding claim 2: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 1], wherein the sum of (A) and (B) units account for 10% to 99% of the polymer (§ 19).

Regarding claim 3: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 1], wherein the ratio of (A) to (B) is about 1:1 (§ 21-26).

Regarding claim 4: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 1], wherein the (A) and (B) units are directly adjacent (§ 21-26).

Regarding claim 5: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 1], wherein the R³ group is alkyl {corresponding to R² group in the amidated maleic anhydride derivative} (§ 7:14; 21-26).

Claim Rejections - 35 USC § 103

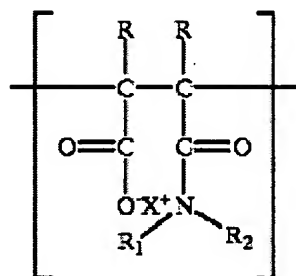
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klug *et al.* (US 2002/0002116) when taken with Ueyama *et al. Macromolecules*, **2001**, *34*, 2607-2614, in view of Klug *et al.* teaches (US Patent 6,063,832).

Regarding claim 6: Klug *et al.* teaches a composition comprising a polymer containing a substituted carboxyl group (A), and substituted carbamoyl group (B), wherein the ratio of (A) to (B) is about 1:1, and the sum of the units in the polymer is 10% to 99% (¶ 7-15; 19; 21-27; 34-41).



wherein

each R is independently H or C₁₋₅-alkyl;

X is H, an alkaline or earth alkaline metal or a quarternary ammonium group;

R₁ is H or C₁₋₁₈-alkyl; and

R₂ is C₁₋₁₈-alkyl;

and wherein the alkyl groups represented by R₁ and R₂ may carry a hydroxy or amino substituent;

Ueyama *et al.* provides evidence that such alternately amidated anhydrides act as ligands for Ca(II) complexes, and may act as models for biomineralization {bone / tooth adhesive}. Klug *et al.* does not teach a dental filler comprising a filler and a curing agent. However, Yuhda *et al.* teaches a dental cement comprising a polymer with an α,β -unsaturated carboxylic acid, and inorganic powder capable of forming a metal chelate (filler such as aluminofluorsilicate), a polymerizable monomer, and an initiator (2:15-32; 2:55-65; 4:49-67; 5:22-42). Klug *et al.* and Yuhda *et al.* are combinable because they are concerned with a similar technical difficulty, namely the preparation of metal chelates of α,β -unsaturated carboxylic acid derivatives. At the time of invention a person of ordinary skill in the art would have found it obvious to have combined fillers and initiators, as taught by Yuhda *et al.* in the invention of Klug *et al.*, and would have been motivated to do so since Yuhda *et al.* suggests that such initiators provide for a fast setting, and such metal chelating fillers provide the sustained release of polyvalent metal

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ions, which results in improvement in the physical properties and durability of the cement (adhesive filler) (10:9-21), and is an equivalent alternative means of providing metal chelated α,β -unsaturated carboxylic acid derivatives for dental applications.

Regarding claim 7: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 6], wherein the sum of (A) and (B) units account for 10% to 99% of the polymer (§ 19).

Regarding claim 8: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 6], wherein the ratio of (A) to (B) is about 1:1 (§ 21-26).

Regarding claim 9: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 6], wherein the (A) and (B) units are directly adjacent (§ 21-26).

Regarding claim 10: Klug *et al.* teaches the basic claimed composition [as set for the above with respect to claim 6], wherein the R^3 group is alkyl {corresponding to R^2 group in the amidated maleic anhydride derivative} (§ 7:14; 21-26).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-7 of copending Application No. 10/555,610. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed compositions of a dental adhesive with an organic polymer comprising carboxyl groups (A) and carbamoyl groups (B) [formulas (I) and (II)] {wherein the ratio of (A) to (B) is about 0.6/1.0 to 1.0/0.6, and the sum of the units in the polymer is at least 20%) overlap in scope. The instant application does not teach the addition of an inorganic powder including a polyvalent metal compound, but it would have been obvious to include an inorganic powder including a polyvalent metal compound, which enables metal cross-linking with the carboxyl groups of the polymer, resulting in improved physical properties and durability of the cement.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. See attached form PTO-892.

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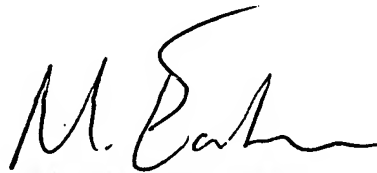
Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pepitone whose telephone number is 571-270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MFP
11-November-2007


MARK EASHOO, PH.D.
PRIMARY EXAMINER

11/Nov/07